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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/829,549	04/10/2001	James T. English	UMO 1521.1	8198
321	7590	02/09/2005	EXAMINER	
SENNIGER POWERS LEAVITT AND ROEDEL ONE METROPOLITAN SQUARE 16TH FLOOR ST LOUIS, MO 63102			WESSENDORF, TERESA D	
			ART UNIT	PAPER NUMBER
			1639	

DATE MAILED: 02/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/829,549	ENGLISH ET AL.	
	Examiner	Art Unit	
	T. D. Wessendorf	1639	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 November 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 and 32-49 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 and 32-49 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 11/10/04 has been entered.

Status of Claims

Claims 1-9 and 32-49 are pending and under examination.

Claims 10-31 have been cancelled.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The rejection of the previous claims over Massey is moot in view of applicants' arguments and the new grounds of rejection below. Furthermore, the indicated allowability of the claims is withdrawn in view of the new grounds of rejection below. [The misinterpretation and confusion in the indication of the allowable subject matter in the Advisory action is regretted. This resulted in the newly presented claims 48 and 49, rather than these claims combined as one claim].

Claims 1-4, 6-9, 32-34, 37-43, 45-47 and 49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gough et al (Jrnl. Of Immunological Methods, 1999) in view of Kodadek et al (US 20010029024) and Petrenko et al (Protein Engineering).

Gough et al discloses at page 98, col. 1 up to page 105 a method for generating antibody from a diverse library of antibodies fused to a vector, phage and panning against the specific plant fungus, *Phytophthora infestans*. See the Materials and Method at page 98 which describes the specifics of the method. Gough does not disclose a non-Ig peptides as used in the method and a f8-1 peptide library. However, Kodadek et al discloses at paragraph [0009] that antibodies which are not low molecular weight compounds, are relatively fragile compared to small molecules. Using classical methods, they are tedious and

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expensive to obtain, particularly in large quantities. Antibodies are not easily rendered cell-permeable. Petrenko discloses at page 797 up to page 798, that phage-peptide do not only include local functionalities that reside in a single variable peptide and its immediate surroundings but also global functions that inhere in the entire surface landscape. Petrenko uses f8-1 to accomplish the above-mentioned results. Accordingly, it would have been obvious to one having ordinary skill in the art at the time the invention was made to substitute a small molecular weight compounds as peptides in the method of Gough as taught by Petrenko and Kodadek. The disadvantages in the use of antibodies as taught by Kodadek, above and the advantages taught by Petrenko in the use of peptide would provide the motivation to one having ordinary skill in the art.

Claims 44 and 49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gough et al (Jrnl. Of Immunological Methods, 1999) in view of Kodadek et al (US 20010029024) and Petrenko as applied to claims 1-4, 6-9, 32-34, 37-43, 45-47 and 49 above, and further in view of applicants' disclosure of known prior art.

Gough does not disclose the phage as f88-4. Applicants at page 11, line 28 up to page 12, line 2 states ".....methods for

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the production of the f88-4 phage-displayed peptide library have also been previously described..... This library displays 15-amino acid foreign peptides on 150 to 300 copies of major coat protein pVIII. The remainder of the 3900 copies of the pVIII subunits is derived from the wild type pVIII. The phage genome thus bears two pVIII genes encoding two different types of pVIII molecules. One pVIII is the recombinant displaying the foreign 15-mer peptide, while the other is the wild-type pVIII normally present on the phage. Because of the presence of two pVIII genes, the f88 virion consists of a mosaic pattern of wild-type and recombinant pVIII subunits. It would have been obvious to one having ordinary skill in the art at the time the invention was made to employ in the method of Gough the phage f88-4 as taught by applicants' disclosure of known prior art. One would be motivated to use this phage because of the characterizing properties of this phage e.g., the presence of two genes with a mosaic pattern of wild-type and recombinant p8. This mosaic pattern or landscapes (see Petrenko) include clones exhibiting emergent properties that inhere in the entire surface architecture, not in the peptides by themselves.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gough et al (Jrnl. Of Immunological Methods,

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1999) in view of Kodadek et al (US 20010029024) and Petrenko as applied to claims 1-4, 6-9, 32-34, 37-43, 45-47 and 49 above, and further in view of Smith (Methods in Enzymology).

Petrenko discloses at page 797, col. 2 a random oligonucleotide sequence comprising the sequence GCA GNk(nnk)6nn as opposed to the claimed GCA GNNN(NNN)7 i.e., a variable NNK as opposed to NNN as claimed. However, Smith at page 243 discloses the two general types of synthetic degenerate oligo libraries. One is the fully degenerate codons (NNN) that encode all 20 amino acids with no bias beyond what is entailed by the unequal degeneracy of the genetic code while doped codons are biased toward one particular amino acid in order to introduce random substitutions into a base peptide sequence. Accordingly, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use NNN codons in the method of Gough as taught by Smith. One would be motivated to use NNN since this codon include all the naturally occurring 20 amino acids with each of the 20 residues equally represented in the library.

Claims 35, 36 and 48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gough et al (Jrnl. Of Immunological Methods, 1999) in view of Kodadek et al (US 20010029024) and

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Petrenko as applied to claims 1-4, 6-9, 32-34, 37-43, 45-47 and 49 above, further in view of Qui (6,235,974).

Gough discloses one of the species of Phytophthora (infestans) but not the other Phytophthora species as recited in e.g., claim 35. However Qui discloses at col. 22, line 50 up to col. 23, line 4 the different species of phytophthora. These different species have the same hypersensitive response to elicitor proteins. It would have been obvious to one having ordinary skill in the art to use other phytophthora species in the method of Gough as taught by Qui. Qui discloses that different species would have the same response e.g., to an elicitor protein. One would be motivated to use a particular species depending upon the fungi present in a particular plant and resistance to a specific fungus is desired.

No claim is allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to T. D. Wessendorf whose telephone number is (571) 272-0812. The examiner can normally be reached on Flexitime.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Wang can be reached on (571) 272-0811. The fax phone number for the

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organization where this application or proceeding is assigned is
571 273-8300.

Information regarding the status of an application may be
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access to the Private PAIR system, contact the Electronic
Business Center (EBC) at 866-217-9197 (toll-free).



T. D. Wessendorf
Primary Examiner
Art Unit 1639

Tdw
February 4, 2005